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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/941,780	08/30/2001	Takeo Tsukamoto	35.C15727	7587
5514	7590	05/17/2005	EXAMINER	
FITZPATRICK CELLA HARPER & SCINTO 30 ROCKEFELLER PLAZA NEW YORK, NY 10112			VU, DAVID HUNG	
			ART UNIT	PAPER NUMBER
			2828	

DATE MAILED: 05/17/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

09/941,780

Applicant(s)

TSUKAMOTO, TAKEO

Examiner

David Vu

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 02 March 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-15, 19-34, 36, 40, 41 and 44-72 is/are pending in the application.
- 4a) Of the above claim(s) 1-13 and 46-59 is/are withdrawn from consideration.
- 5) ☒ Claim(s) 21-34 and 36 is/are allowed.
- 6) ☒ Claim(s) 14, 15, 19, 20, 40, 41, 44, 45 and 60-72 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                        | 4) <input checked="" type="checkbox"/> Interview Summary (PTO-413)          |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)               | Paper No(s)/Mail Date. <u>20010830</u> .                                    |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date <u>11/8/04</u> .   | 6) <input type="checkbox"/> Other: _____.                                   |

## DETAILED ACTION

### *Specification*

1. Applicant's cooperation is requested in correcting any errors of which applicant may become aware in the specification.

### ***Claim Rejections - 35 USC § 103***

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 14-15, 19-20, 40-41, 44-45, and 60-72 are rejected under 35 U.S.C. 103(a) as being unpatentable over Deguchi et al (of record) in view of the American Chemical Society published paper by Rodriguez et al. (of record) and Roach, U.S. Pub No 2003/0222560.

Deguchi et al. essentially disclose the claimed invention including carbon fibers (graphenes) on cathode or first electrode 12, 45, second or gate or controlling electrode 15,48; substrate 11,41; light emitting member or phosphor 44 and anode electrode 46 on substrate 42; graphene structure can take cylindrical shape as in carbon nanotube; see, for example, figures 2-3; columns 5-6. Deguchi et al fail to explicitly disclose the plurality of graphenes layered stacked so as not to be parallel or not perpendicular to or in the direction of an axis of the fiber on the cathode, and the graphenes extending in a direction intersecting the longitudinal axis of the fiber. Rodriguez et al. disclose a

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plurality of graphenes layered not parallel or not perpendicular to or in the direction of an axis direction of the fiber, the graphenes extending in a direction intersecting the longitudinal axis of the fiber (figures 1-2; pages 3863-3864). Roach discloses carbon graphene platelets on field emitter cathode (abstract, [0013-0014, [0022])). It would have been obvious to one having ordinary skill in the art at the time of applicant's claimed invention was made to have provided the Deguchi et al reference with the known graphene arrangements on the cathode as taught by Rodriguez et al. and Roach for the purpose of improving electron emission.

Regarding claim 15, figures 1-2 do show the graphenes are substantially parallel to each other.

Regarding claims 19-20, 66-67, 70-71, figure 3 of the Deguchi et al reference shows plurality of electron-emitting devices and light emitting member 44 emits light when irradiated with electrons from the electron-emitting devices. Column 1, lines 5-10, column 15, lines 19-23, does suggest the use of electron emission device in display area; thus, one of ordinary skill in the art would have been motivated to have employed an image display in the television as well as in computer field.

#### ***Allowable Subject Matter***

4. Claims 21-34 and 36 are allowed.

#### ***Response to Arguments***

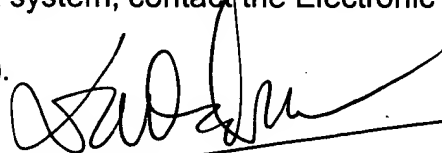
5. Applicant's arguments with respect to claims 14-15, 19-20, 40-41, 44-45, and 60-72 have been considered but are moot in view of the new ground(s) of rejection.

**Conclusion**

Any inquiry concerning this communication or earlier communications from the examiner should be directed to David Vu whose telephone number is (571) 272-1831. The examiner can normally be reached on M-F 8am-430pm.

The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



David Vu  
Primary Examiner  
Art Unit 2828

dv